

# RECORDS OF ANTHOCORIDAE, PARTICULARLY FROM NEW YORK.

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This, like many other notes, started to be a mere listing of localities and biological facts out of my collection and field journals. But in its course, it became necessary to check up many determinations. Hemiptera of Connecticut, while eminently usable and entirely accurate, did not go far enough; and it was necessary to have recourse to the original sources for the study of anthocorids—Reuter's masterly monograph of 1884, 46 years old, but still the standard work; and Poppius' Beiträge of 1909. Restricted keys for the species of the Eastern States were drawn up from the literature; and they are here offered as an aid to the identification of our own northern forms without the injection of tropical and subtropical species not as yet found with us and unlikely to occur so far North. One genus and its species (*Xenotrachelliella inimica* D. & H.) are not included because none of the key characters used by Reuter appears in the descriptions, which are largely by color, following the European obsolescent practice. While these keys are at times similar to those in Blatchley, it is because they are drawn from the same sources. Where they differ (and where names also differ) it is because Reuter has been followed closely.

In keying the subfamilies I endeavored to find from the literature some stable yet visible character other than the hamus of the cell of the second pair of wings—but all the authors consulted offered no other. This, of course, is a perfectly valid character, but it calls for the practical destruction of a delicate specimen before it can be seen. A monograph of the family is now in progress at Ames, Iowa, so it is hardly worth while to go to the pains and research required, when my present purpose is merely to offer practicable and practical keys to supplement the eminently usable ones in Hemiptera of Connecticut.

## KEY TO THE FAMILY ANTHOCORIDAE.

1. Third and fourth segments of antennae slender, linear, beset with long hairs .....2  
Third and fourth segments of the antennae fusiform, with short hairs .....Subfamily ANTHOCORINAE



First segment of rostrum nearly reaching apex of prosternum ;  
second joint of antennae  $\frac{1}{3}$  longer than the width of the  
head; 4.5 mm. long.....*elongatus* Reut.

*Lyctocoris campestris* Fabr., 1794.

This widespread European form is recorded from Quebec to Texas and Colorado. It is listed from the State in the New York list, but not from Connecticut in Hemiptera of Connecticut. All the following records are new.

Indian Lake, Sabael, N. Y., August 31, 1921 (Notman) : White Plains, N. Y., June 19, 1915, and October 17, 1908, on glass pane of door (J. R. T. B.). Cornwall, Conn., July 22, 1924 (Frost). Buffalo Lake, Minn. (No other data).

*Lyctocoris stålîi* Reut., 1871.

Southern Pines, N. C., Jan., 1911 (A. H. Manee). *Lyctocoris canadensis* Prov. is not keyed because no key characters are given in the description. Blatchley records *L. elongatus* from Lakehurst, N. J.—probably taken by Mr. Wm. T. Davis. *L. stålîi* figures in the New York List from the State.

#### KEY TO LASIOCHILUS REUTER.

(Adapted from Reuter.)

Pale or fuscous testaceous; entire clavus most distinctly subseriately punctate, a series of piliferous punctures on the corium parallel to the claval suture. (Apex of embolium as wide as the apex of the corium; margin of pronotum and of embolium with long cilia, first joint of rostrum scarcely reaching apex of head.) 2.5 to 3.33 mm. long.

*pallidulus* Reuter

Obscure fuscous; clavus hardly or obsoletely punctate: (Margin of pronotum with short cilia; margin of hemielytra with long cilia; rostrum reaching intermediate coxae; apex of first joint of rostrum nearly reaching eyes). 2.75 mm. long.

*fuscus* Reuter

*Lasiochilus pallidulus* Reuter is known from South Carolina, Florida and Texas southwest. It may at some time be found in the pine barrens of Long Island; and is therefore noted here.

*Lasiochilus fuscus* Reuter.

This species has an extensive range—from New York south and west into New Jersey, Indiana, South Carolina, Tennessee, Mississippi, Florida and Texas. The New York State List records it from Hamburg.

## KEY TO XYLOCORIS DUFOUR.

(= *Piezostethus* Fieber.)

(Adapted from Reuter.)

1. Channel of metasternal orifices long, margins even, the internal scarcely expanded into a wide smooth area. . . . . 2  
 Channel of the metasternal orifices transverse, scarcely curved, prolonged into a curved shining area. (Entire hemielytra very shining). 2 mm. long. . . . . *vicarius* Reuter
2. Channel of the metasternal orifices extremely long, prolonged into a carinate-acuminate apex, which reaches the basal margins of the pleura. Hemielytra somewhat shining, always at least as long as the abdomen or hardly shorter. (Hind tibiae finely pilose, devoid of long hairs); larger species, at least 2.5 mm. long. . . . . 3  
 Channel of the metasternal orifices prolonged in a carina, not much acuminate toward apex and most distinctly abrupt a little below the basal margin of the pleura; 2.25 to 2.5 mm. long. . . . . *cursitans* Fabricius
3. Hemielytra whitish; apex of the clavus and the cuneus, the suture of the membrane only and sometimes its exterior margin, narrowly fuscous; channel of the metasternal orifices curved in an obtuse angle; 2.3 to 3 mm. long.  
*galactinus* Fieber  
 Hemielytra sordid white or greyish; commissure and clavus and frequently its scutellar edge and the embolium black or piceous, the blackening sometimes quite extensive; channel of metasternal orifices curved in a very obtuse arc; 2.75 mm. long. . . . . *sordidus* Reuter

There are actually five species of this genus in the Eastern part of this country, but the fifth—*Xylocoris betulinus* D. & H.—could not be fitted into this key because of the absence in its description of the characters herein used. The genus figures in most of our lists as *Piezostethus* Fieber.

*Xylocoris galactinus* Fieber.

This species has heretofore been recorded from this country from New York, Illinois, Georgia and Florida; the New York List gives it from Lake Placid (in the Adirondacks); and Blatchley adds Roselle Park, N. J.—now Roselle—probably from the collections of Mr. H. G. Barber. I have taken it in White Plains (September 2, 1916) by sweeping, this being another New York record.

*Xylocoris sordidus* Reuter.

Van Duzee gives its range as New York, Pennsylvania and Texas; Blatchley records it from Florida; and the New York List gives it from White Plains. This last record, however, may be based on a misidentification of *X. vicarius*.

*Xylocoris vicarius* Reuter.

This is the species that has frequently been reported as *Piezostethus sordidus* by myself and by others. It has also gone under the name of *cursitans*. Careful checking with Blatchley's keys led this species to this name. My own key preceding repeatedly gave the same result. According to Blatchley this is a Floridian species. Reuter described it from "Am. Sept." The form of the metasternal channel is distinctive. This species is the common dark brown or piceous, apterous species to be found nearly at all times of the year in dampish spots, under the bark of dead trees, running about with *Scolopendrella* and sundry small beetles, principally Staphylinids. The nymphs are bright red, but otherwise superficially resemble the apterous full grown bug. Records of this species are as follows:

New York—McLean, Tompkins Co., July 14, 1919, under bark of recently cut white pine; L. I., Cold Spring Harbor, August 3, 1920; Westchester Co., White Plains, (years omitted), March 11 and 21, March 22 (under bark of dead apple tree), March 31 (under bark of dead tulip tree), April 12, (these specimens also were found under the bark of a dead and fallen apple tree, in the moist, dark spots, together with various Collembola, and a couple of bright red nymphs were also noted, probably in the last instar), May 22, June 2, July 4 (in flight), September 26.

Leeds, Massachusetts, April 6, 1919; Ridgefield, Conn., September 1, common under damp bark; Westfield, N. J., June 19, 1904;



Lakehurst, N. J., July 7. (This specimen was determined by the late Otto Heidemann as *Xylocoris americanus* Dallas).

*Xylocoris cursitans* Fallen.

This species, heretofore recorded from New York and elsewhere is probably a misidentification of the preceding. However, the following records appear to be of the true species. White Plains, N. Y., August 24, 1907. Westfield, N. J., August 14, and September 4, 1904.

#### ASTHENIDEA REUTER.

In this genus there is only one species in our limits—

*Asthenidea temnostethoides* Reuter.

It is recorded from Illinois by Blatchley; is reported in the New York List from Cranberry Lake; and by Drake and Hottes from Batavia—both localities in the northern part of the State.

#### KEY TO GENERA OF ANTHOCORINAE.

(From Hemiptera of Connecticut.)

1. Pronotum trapezoidal, its outline not continuous with that of the head; membrane with three or four veins.....2  
 Pronotum conical, becoming cylindrical anteriorly and forming a continuous outline with the elongate head; membrane with one vein.....*Macrotrachelliella* Champion
2. Collar of pronotum distinct; membrane with four veins.....3  
 Collar obsolete; membrane with three veins.....*Orius* Wolff
3. Sides of pronotum not explanate; corium not or obsoletely punctate; metasternal canals not elevated at lateral ends.

*Anthocoris* Fallén

Sides of pronotum explanate, extending anteriorly more or less beyond base of collar; corium distinctly punctate; canals prominent laterally.....*Tetraphleps* Fieber

The genus *Anthocoris* contains only one species within our limits, which is that heretofore named *A. borealis* Dallas, but *Anthocoris musculus* Say appears to be its proper name. This was adumbrated in Hemiptera of Connecticut by Parshley and adopted as the correct name by Blatchley. An independent checking by myself to establish which was right led to this result. A comparison of Say's description of *Reduvius musculus* from the

Northwest Territory and Dallas's *Anthocoris borealis* from Hudson Bay Region might lead to the idea that they are doubtfully the same. However, a checking of the same specimens with the two original descriptions leads to the certainty of their identity. We may regard the synonymy to be now definitely established. Nevertheless, it may be that the descriptions refer to some Western and Northern form; and thus ours may be without a name.

Parenthetically, here are two descriptions which for their time are relatively full. Yet, judging by the descriptions alone, it might seem that we had two different species. But with a sufficiency of specimens in hand, we can find that the two descriptions fall within the limits of variation of the species. In measuring specimens, I found the smallest to be 3 mm. long and the largest 3.75 mm. All the specimens were from within a range of 5 miles from White Plains in Westchester County, N. Y.

Wherever there are beeches is the place to look for *Anthocoris*. These little bugs are to be found in the curled over edges of certain of the bleached leaves, in abundance. Each leaf will harbor generally three or four, sometimes more, sometimes fewer. My notes of August 4 of this year, when I found them in numbers on Petra Island in Lake Mahopac, Putnam County, N. Y., are rather full and follow here:

The beeches showed the usual bleached and curled-edged leaves. Inspection of these showed concealed in them the usual *Anthocoris musculus*, mostly adults, but here and there a nymph. However, not every curled leaf is tenanted. The abundant curled leaves of one small sapling—almost bush-like—did not yield a single specimen. But here and there, in the scattered bleached leaves within reach, of the larger trees, and quite frequently in those of the larger saplings, the bug was to be found.

The undersides of these bleached and dried leaves were covered with dry cast skins of a white, colorless aphid and a mite; and the curled over edges shelter small pale spiders and their webs in the hidden channels or leafy tunnels. It is in these tubes or channels that *Anthocoris* hides. These channels are more or less filled with a sticky dirt, remnants of cast skins, threads like micelia of fungi, etc., and here the 1 mm. long young aphids are hidden.

Light on the preceding is cast by a recent article in the Entomologists' monthly magazine (LXV, pp. 103-4), by W. Stern, on the fauna of *Rubus* sp. He notes *Anthocoris nemorum* as at-

tacking the aphid *Amphorophora rubi*, various jassids and two mites, one being the universal *Tetranychus telarius* L., which also appear to be its diet in the trees it frequents. The species hibernates as an adult.

The species is recorded extensively in the New York List under both names. To these records from New York may be added the following, heretofore unpublished. WESTCHESTER COUNTY: Armonk, May 5, 1924; June 14, 1914. Wampus Lake (vicinity), June 6, 1923, swept. Valhalla, August 18, 1923; "a beech with bleached and curled leaves when beaten yielded with little effort many" and "there flew out from it numbers of a white aphid." White Plains, June 5, 1924, from alder; June 22, 1919, 1 nestling in terminal bud of black alder; July 1, 1923, 1 on aspen; July 5 and 6, 1924, from beech, as usual; July 29, 1922, "about 30 from Beech;" August 10, 1921; September 4, 1921, "on the beech leaves as before." Hartsdale, July 5, 1924. PUTNAM COUNTY: Lake Mahopac, August 2, 1929. LONG ISLAND: Cold Spring Harbor, July 30, 1920; August 21, 1924.

Outside of New York, I have the species from Parry Sound District Ontario, Canada, July 26, 1915, H. S. Parrish Collector; from Portland, Maine, one specimen, May 13, determined by Ashmead as *Anthocoris antevolens* B. White; from Framingham, Mass., taken by A. C. Frost, 1 May 29 and another September 29, 1929.

#### KEY TO TETRAPHLEPS FIEBER.

(Adapted from Blatchley and the Original Descriptions.)

1. Length of antennae equal to width of head including eyes. .2  
Length of antenna greater than width of head including eyes.  
*uniformis* Parshley
2. Beak reaching between middle coxae. . . . . *osborni* Drake  
Beak not reaching middle coxae. . . . . *americana* Parshley

This key has been checked systematically with the original descriptions; and with the descriptions in Blatchley. There is a singular lack of consistency and symmetry in all of them. The characters on which the specific differentiation is made are not similarly stated for each species—that is, they are not strictly comparable one with the same in another species. For example, Blatchley, taking his characters from the descriptions, thus characterizes the first segment of the antennae: *americana*—segment I reaching the middle of cheeks; *osborni*—segment I equal to 3/5



of III; *uniformis*—not mentioned. It may readily be seen that there is here no common denominator for this character, which accordingly becomes vague in use. This is true of practically all the other characters employed. I have argued elsewhere that a description is not an elegant exercise for those that know all about a species, but that it is for the very practical purpose of informing some one who knows nothing about it; or for the purpose of affording a foundation for a critical study on the part of one who does. *Tetraphleps canadensis* Prov., not keyed or referred to elsewhere here, is obviously a *Tetraphleps*, according to Van Duzee, but so vaguely described that it is impossible to place it specifically in the absence of the type. It is conceivable that some cognate species to those mentioned may some day be discovered, which it may not be possible to recognize as different from any description published, because of the absence of the true critical character.

*Tetraphelps americana* Parshley.

This species is recorded from New York; from Maine, whence it was described; and from Ottawa, Canada, by Dr. Blatchley. I have a specimen from Claremont, N. H., collected by Mr. G. P. Engelhardt, a new distributional record.

The other two species are recorded from New York in the State List, although both seem northern.

#### MACROTRACHELIELLA CHAMPION.

Of this genus there appears to be only one northern species, *Macrotrachelietta nigra* Parshley.

The species is known from Massachusetts and Rhode Island; and is recorded from Staten Island, N. Y., in the State List. I beat it in numbers from scrub pine in company with *Aradus cinnamomeus*, at Lakehurst, N. J., June 29, 1911. This record extends the distribution of the species further south. Likewise, it might appear that it should be found in the pine barrens of Long Island and of Connecticut if sought for at the proper time.

#### KEY TO ORIUS WOLFF.

(= *Triphleps* Fieber.)

Basal half of clavus blackish brown ..... *insidiosus* Say  
Clavus entirely black ..... var. *tristicolor* B. White

*Orius insidiosus* is our widespread American species. It occurs throughout the State of New York; and is, of course, common

about White Plains and in Westchester County in general. I also have it from Southern Pines, N. C. (A. H. Manee), May and September, 1911. From Woodgate, I received it from Jemez Springs, New Mexico, dated May 25, 1915.

The var. *tristicolor*—a mere color form, scarcely worthy of a name—has been taken at Ithaca on July 16, 1919, sweeping and at White Plains, May 31, 1924, also sweeping, in a damp meadow.

The last of the subfamilies, the Dufouriellinae, is not mentioned in Hemiptera of Connecticut, but Blatchley records it in his Manual, giving and keying six genera, of which three by their general distribution should be found in the Northeastern States, one of them being already recorded from New York in the State List.

#### KEY TO GENERA OF DUFOURIELLINAE.

(Adapted from Reuter.)

1. Anterior femora unarmed ..... 2  
Anterior femora incrassate, dentate beneath.

*Scoloposcelis* Fieber

2. Base of pronotum quite deeply sinuate (first segment of antennae hardly reaching apex of the head; anterior femora hardly thicker than posterior).

*Dufouriellus* Kirkaldy (= *Xylocoris* Westwood)

Base of pronotum slightly sinuate (femora elongate).

*Cardiastethus* Fieber

#### KEY TO CARDIASTETHUS FIEBER.

Membrane unicolorous or with only a narrow hyaline line next to the apex of the membranal suture (head transverse; base of pronotum more than twice its length); veins free, interior weak; length, 1.75 mm. .... *pergandei* Reut.

Membrane fusco-fumate, a vittula in the interior angle and a subtriangular spot at the exterior basal angle; only first and fourth veins of the membrane distinguishable, the second and third quite obsolete; length 2.4 mm. .... *luridellus* Fieber

*Cardiastethus pergandei* Reuter appears to be known only from the District of Columbia. *Cardiastethus luridellus* was described originally from Pennsylvania, and that remains its sole record.

*Dufouriellus* Kirkaldy is represented in our northeastern fauna by only one species, *D. ater*, Dufour, a Palaearctic species recorded in the New York State List from Hamburg, N. Y.

The genus *Scoloposcelis* likewise has only one representative with us, *S. flavicornis* Reuter, described from Texas, and since recorded from Pennsylvania, Florida and Indiana.